ļ.i.

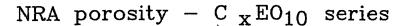
#3

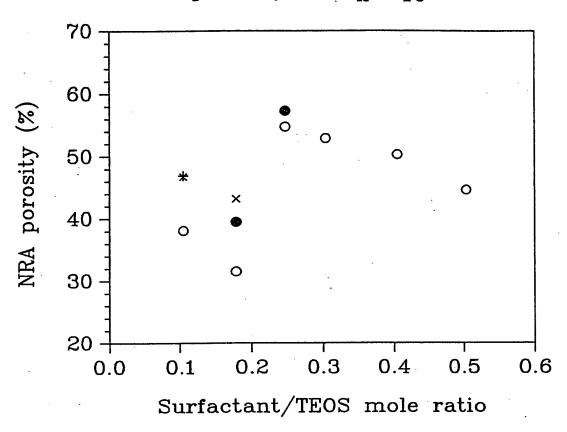
In re patent applicatio Liu, et al Invention: MESOPOROUS SILICA FILM FROM SOLUTION CONTAINING A SURFACTANT AND METHODS OF MAKING SAME

Filing Date: April 18, 2000

PagePage 1 of 14

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Portland, OR 97205 (503) 222-3613 Attorney's Do. No. 1941-76





+ C₁₈EO₁₀ (XL-91 sample series) • C₁₆EO₁₀ (XL-132 sample series) • C₁₆EO₁₀ (XL-90 series) × C₁₂EO₁₀ (XL-92 series)

Fig. 1

Filing Date: April 18, 2000

PagePage 2 of 14

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Portland, OR 97205 (503) 222-3613 Attorney's Do. No. 1941-76

 $C_{12}EO_{10}$ based Films Surfactant/TEOS mole ratio = 0.17

Effect of Dehydroxylation Treatments on k¹

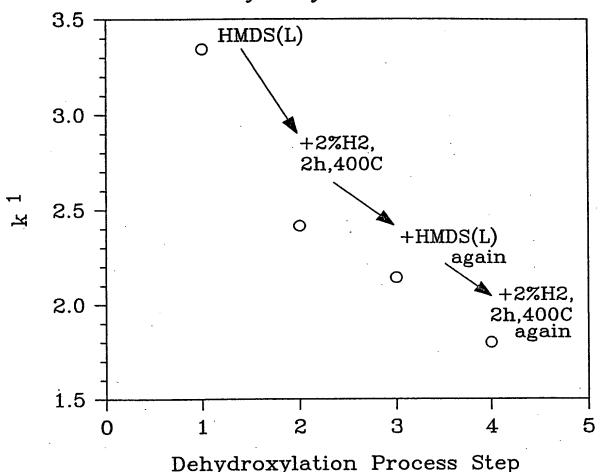


Fig. 2

Invention: MESOPOROUS SILICA FILM FROM SOLUTION CONTAINING A SURFACTANT AND

METHODS OF MAKING SAME Filing Date: April 18, 2000

PagePage 3 of 14

13

CO Lu

The first of the first than the

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Portland, OR 97205

(503) 222-3613

Attorney's Do. No. 1941-76

 $C_{16}EO_{10}$ based Films Surfactant/TEOS mole ratio = 0.3

Effect of Dehydroxylation Treatments on k^1

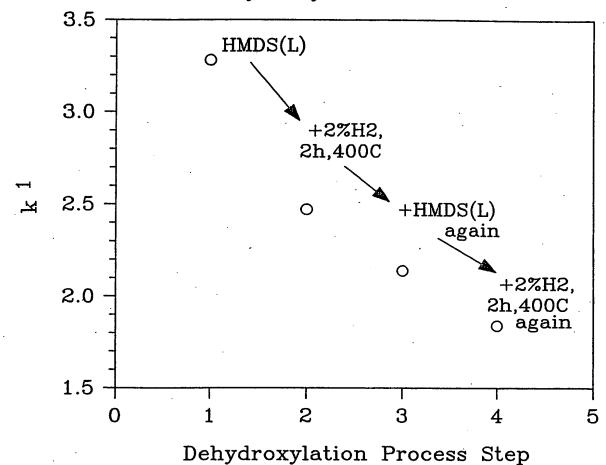


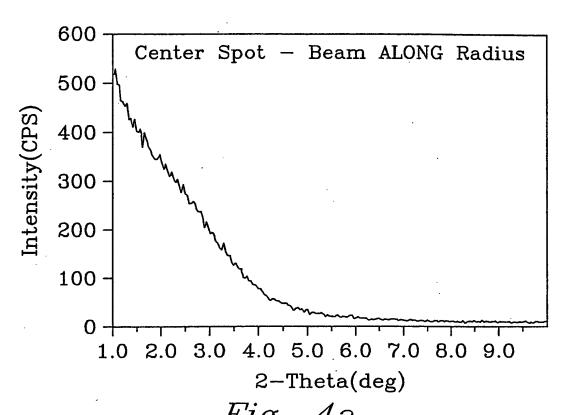
Fig. 3

In re patent application. Liu, et al Invention: MESOPOROUS SILICA FILM FROM SOLUTION CONTAINING A SURFACTANT AND

METHODS OF MAKING SAME Filing Date: April 18, 2000

PagePage 4 of 14

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Portland, OR 97205 (503) 222-3613 Attorney's Do. No. 1941-76



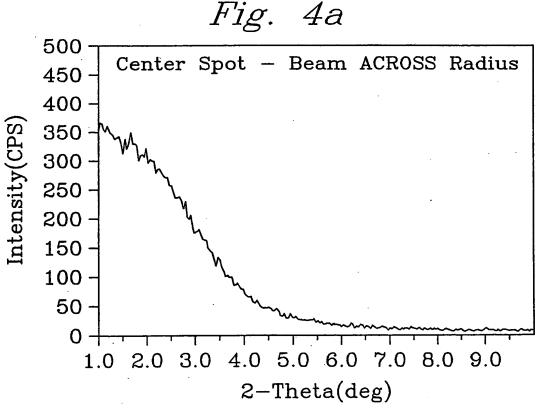


Fig. 4b

In repatent application of Liu, et al
Invention: MESOPOROUS SILICA FILM FROM
SOLUTION CONTAINING A SURFACTANT AND
METHODS OF MAKING SAME

Filing Date: April 18, 2000

PagePage 5 of 14

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Portland, OR 97205 (503) 222-3613 Attorney's Do. No. 1941-76



Fig. 5

In re patent application. Liu, et al

Invention: MESOPOROUS SILICA FILM FROM SOLUTION CONTAINING A SURFACTANT AND

METHODS OF MAKING SAME

Filing Date: April 18, 2000

PagePage 6 of 14

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Portland, OR 97205 (503) 222-3613 Attorney's Do. No. 1941-76

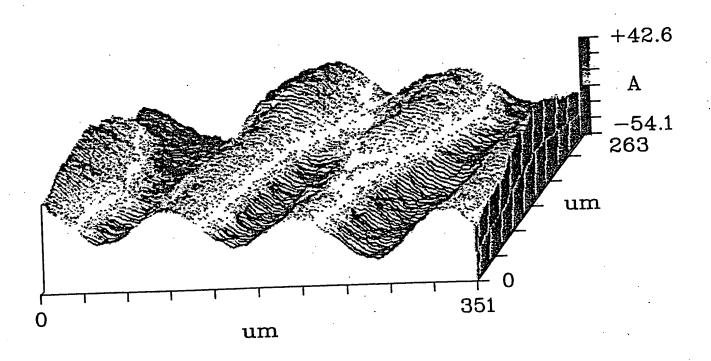


Fig. 6a

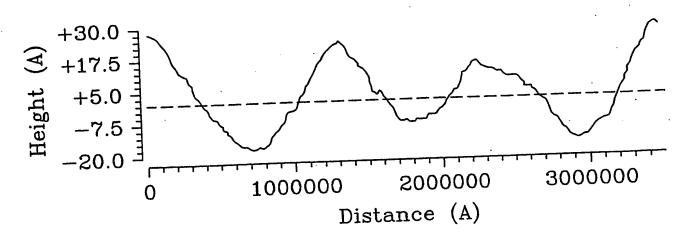


Fig. 6b

In re patent application Liu, et al

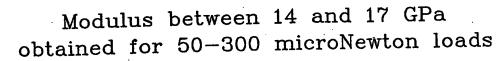
Invention: MESOPOROUS SILICA FILM FROM SOLUTION CONTAINING A SURFACTANT AND

METHODS OF MAKING SAME

Filing Date: April 18, 2000

PagePage 7 of 14

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Portland, OR 97205 (503) 222-3613 Attorney's Do. No. 1941-76



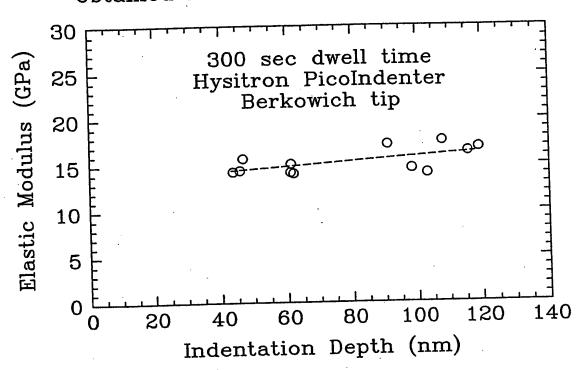


Fig. 7

In re patent application Liu, et al Invention: MESOPOROUS SILICA FILM FROM SOLUTION CONTAINING A SURFACTANT AND

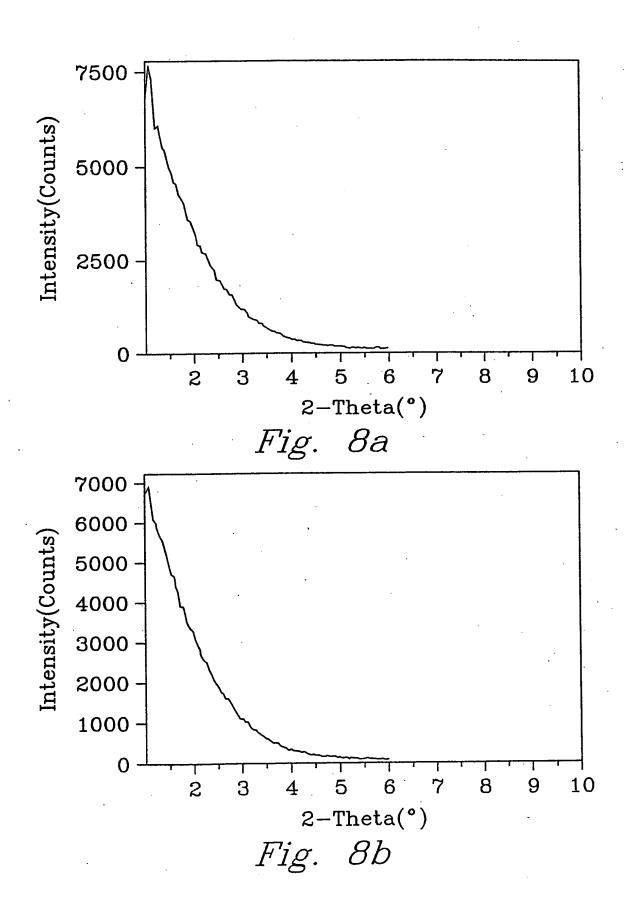
METHODS OF MAKING SAME

Filing Date: April 18, 2000

PagePage 8 of 14

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Portland, OR 97205 (503) 222-3613



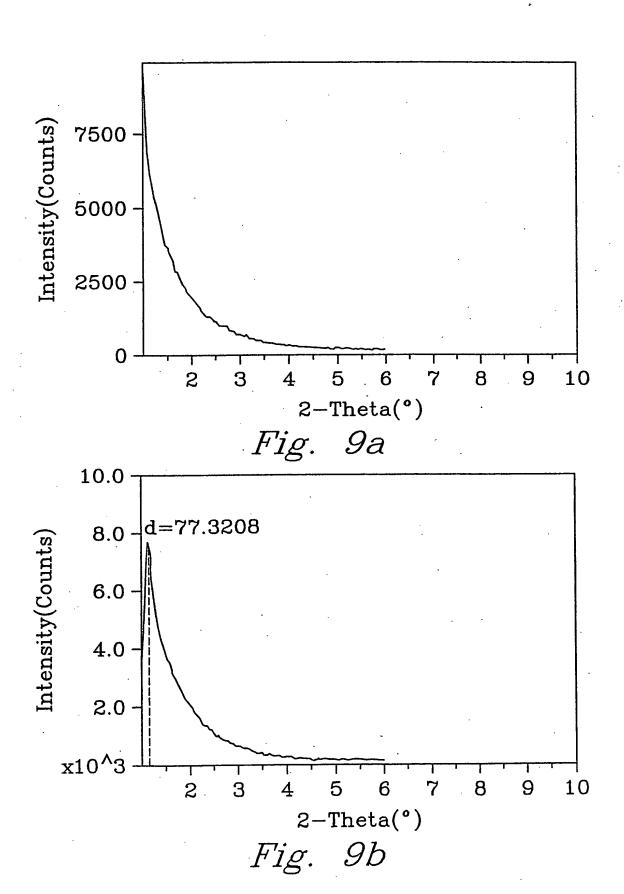


In re patent applicatio Liu, et al Invention: MESOPOROUS SILICA FILM FROM SOLUTION CONTAINING A SURFACTANT AND METHODS OF MAKING SAME

Filing Date: April 18, 2000

PagePage 9 of 14

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Portland, OR 97205 (503) 222-3613 Attorney's Do. No. 1941-76

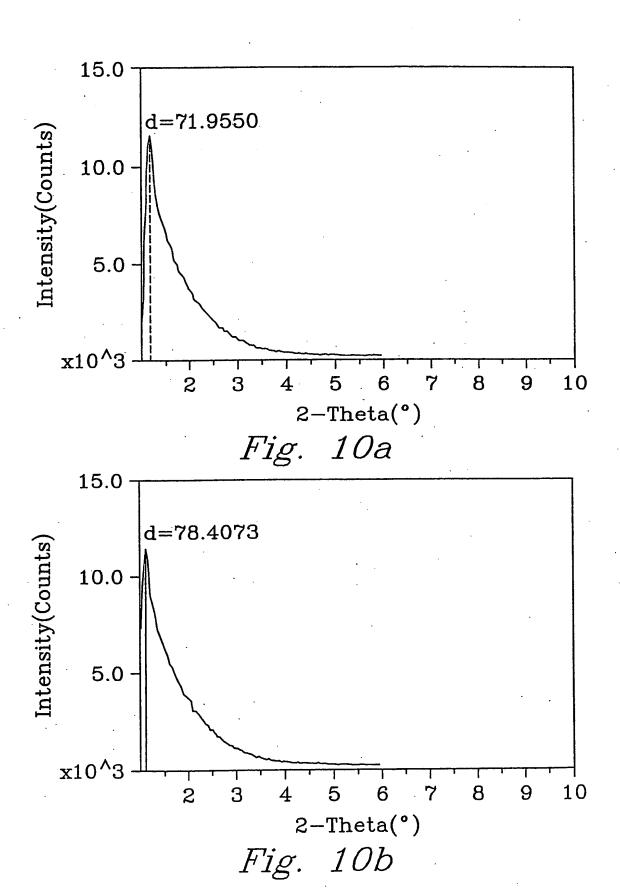


In re patent application. Liu, et al Invention: MESOPOROUS SILICA FILM FROM SOLUTION CONTAINING A SURFACTANT AND METHODS OF MAKING SAME

Filing Date: April 18, 2000

PagePage 10 of 14

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Portland, OR 97205 (503) 222-3613 Attorney's Do. No. 1941-76



In re patent application Liu, et al

Invention: MESOPOROUS SILICA FILM FROM SOLUTION CONTAINING A SURFACTANT AND

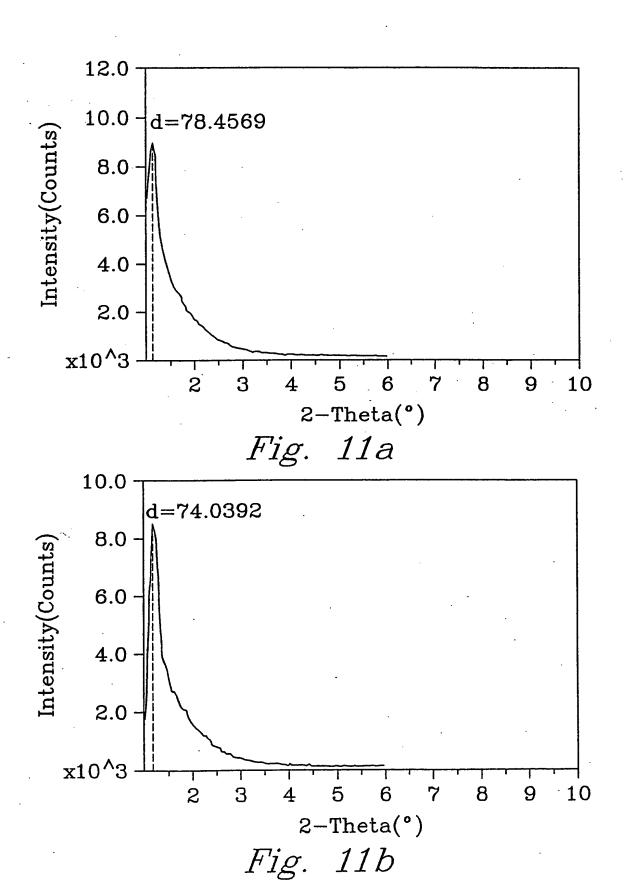
METHODS OF MAKING SAME Filing Date: April 18, 2000

PagePage 11 of 14

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison

Portland, OR 97205 (503) 222-3613

Attorney's Do. No. 1941-76



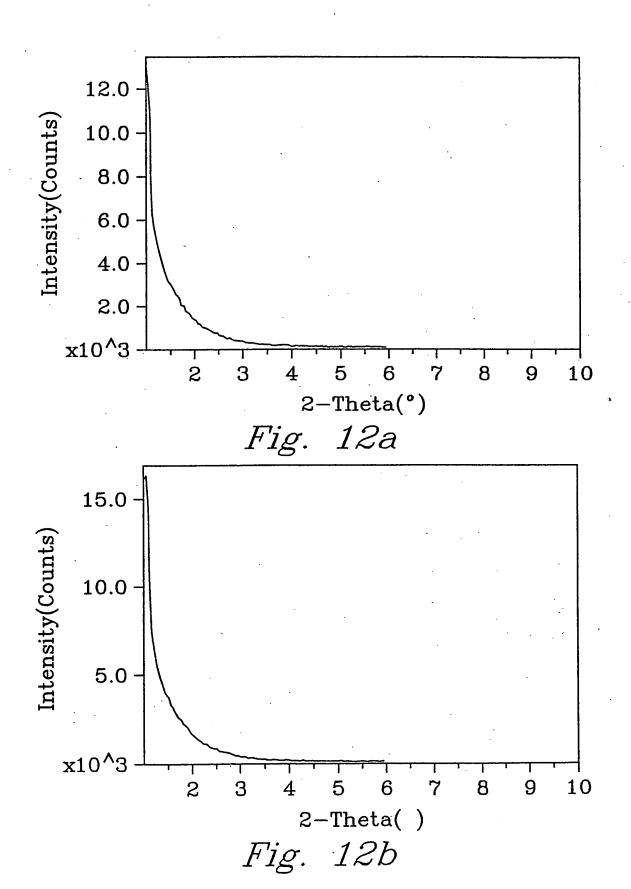
In re patent application. Liu, et al Invention: MESOPOROUS SILICA FILM FROM SOLUTION CONTAINING A SURFACTANT AND METHODS OF MAKING SAME

Filing Date: April 18, 2000

PagePage 12 of 14

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Portland, OR 97205 (503) 222-3613

Attorney's Do. No. 1941-76



In re patent applicatio Liu, et al

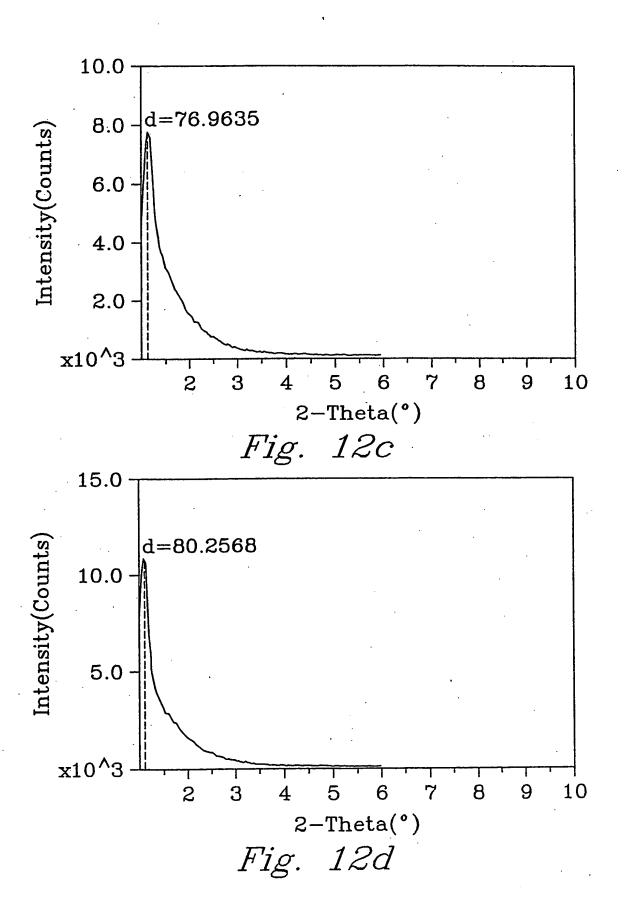
Invention: MESOPOROUS SILICA FILM FROM SOLUTION CONTAINING A SURFACTANT AND

METHODS OF MAKING SAME Filing Date: April 18, 2000

PagePage 13 of 14

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Portland, OR 97205 (503) 222-3613

Attorney's Do. No. 1941-76



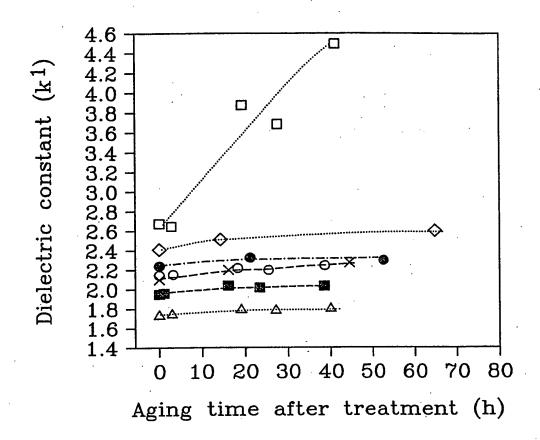
In re patent application Liu, et al

Invention: MESOPOROUS SILICA FILM FROM SOLUTION CONTAINING A SURFACTANT AND

METHODS OF MAKING SAME Filing Date: April 18, 2000

PagePage 14 of 14

Marger Johnson & McCollom, P.C. 1030 S.W. Morrison Portland, OR 97205 (503) 222-3613 Attorney's Do. No. 1941-76



□ 2%H2,2h,400°C (103-2-1-B1)
 ♦ HMDS (L)>>2%H2,2h,400°C (XL-92-2)
 • HMDS (L)>>2%H2,2h,400°C>>HMDS(L) (103-2-I-A1)
 △ HMDS (L)>>2%H2,2h,400°C>>HMDS(L)>>2%H2,2h,400°C (103-2-I-A2)
 ■ HMDS (L)>>Ar,2h,400°C (103-2-1-B2)
 HMDS (L)>>Ar,2h,400°C>>HMDS(L) >>Ar,2h,400°C (112-1-III-D2)
 × HMDS spin coat>>2%H2,2h,400°C>> HMDS spin coat>>2%H2,2h,400°C>> HMDS spin coat>>2%H2,2h,400°C>>